

VIRGINIA STANDARDS OF LEARNING

Spring 2004 Released Test

GRADE 8
Science

LARGE PRINT FORM

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DIRECTIONS

Read each question carefully and choose the best answer.

SAMPLE

DOLPHIN

JELLYFISH

CRAB

These animals are grouped together because all of them

- A live in the water**
- B are fish**
- C are warm-blooded**
- D lay eggs**

Bean Plant Growth After 30 Days

Brand of Fertilizer	Height of Plants (cm)					Mean Height
	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	
A	52	53	51	50	52	51.6
B	58	58	55	56	57	56.8
C	51	52	50	53	52	51.6
No Fertilizer	46	48	46	49	47	47.2

The chart shows the results of a bean plant growth experiment. The plants received equal amounts of water and sunlight each day. Which of these is NOT an example of a constant in this experiment?

- A Growing time
- B Bean plant height
- C Amount of sunlight
- D Amount of water

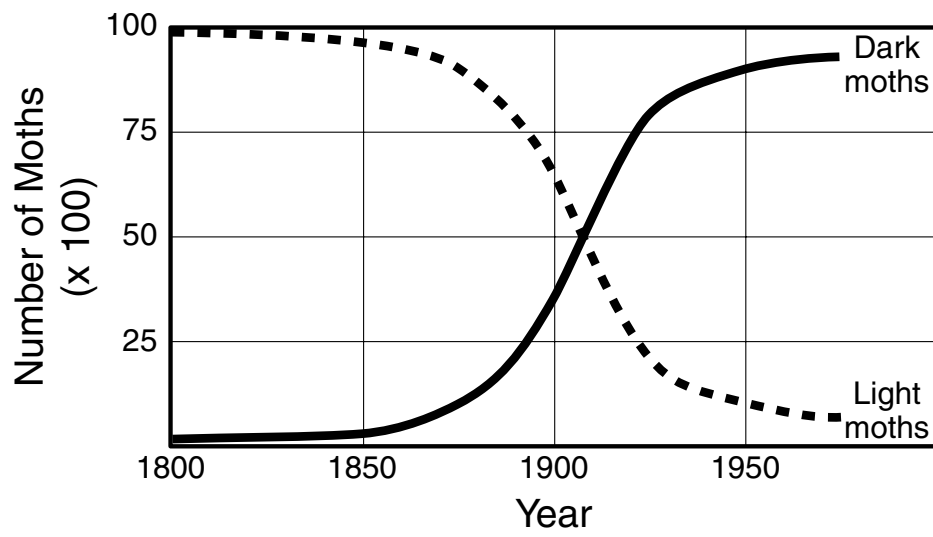
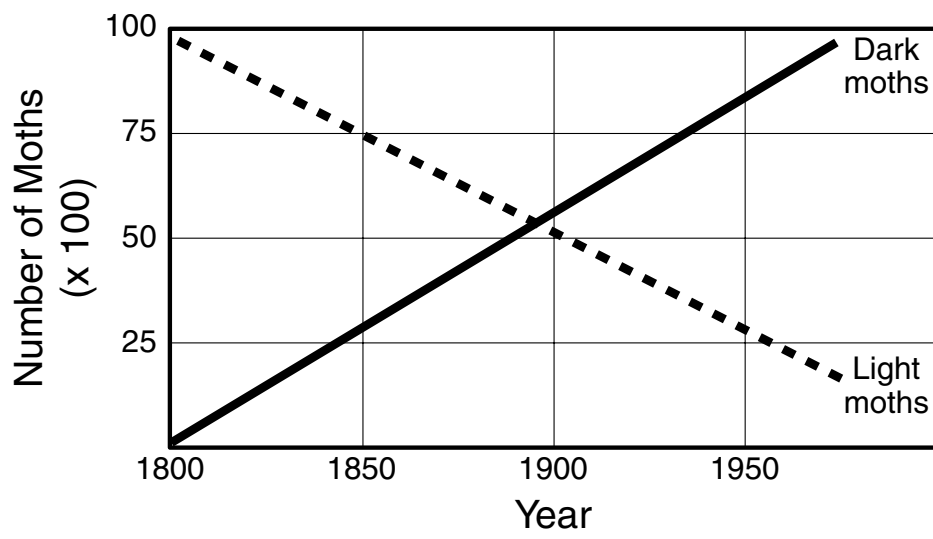
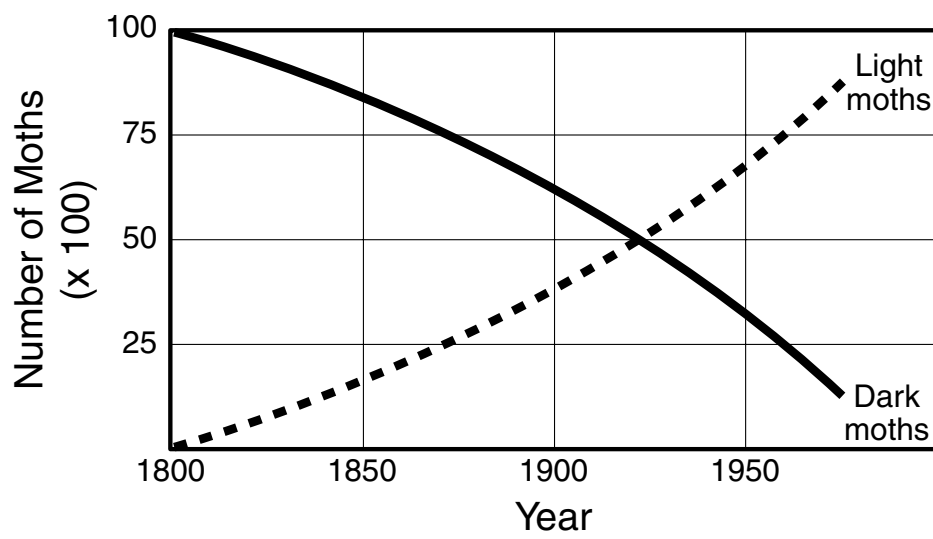
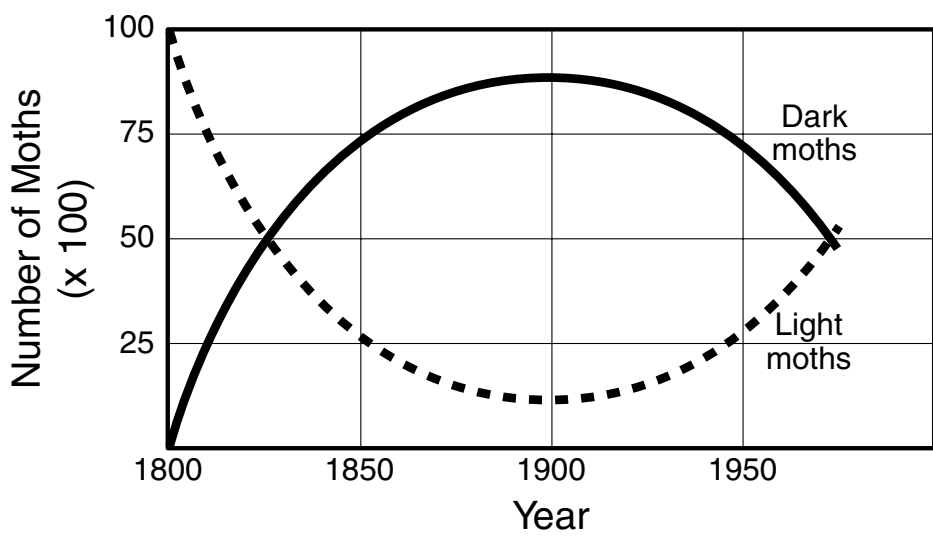
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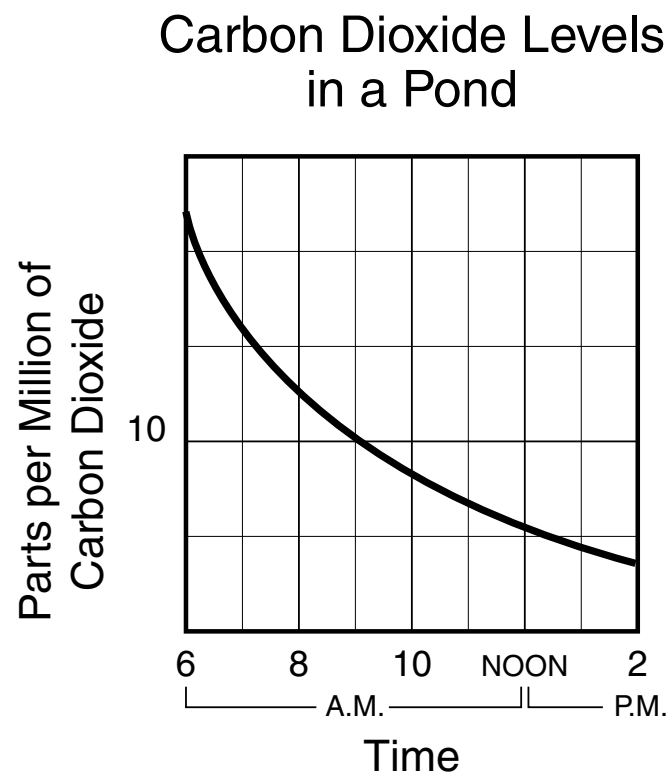
Number of Moths By Year (x100)

Kind of Moth	1800	1850	1875	1900	1925	1950	1975
light	100	97	90	65	21	10	7
dark	0	3	10	35	79	90	93

Scientists have spent many years studying the peppered moth, which is a species that has adapted its color from light to dark in reaction to environmental pollution.

Which of the following line graphs represents the data from the table?

F**G****H****J**



The graph shows the relationship between the time of day and the amount of carbon dioxide in a certain pond. Which of these best describes the relationship?

- A During the morning hours, there is less carbon dioxide released by fish.**
- B During the morning hours, there is less carbon dioxide found in the pond.**
- C There is more carbon dioxide released by animals later in the day.**
- D There is more carbon dioxide used up by algae later in the day.**

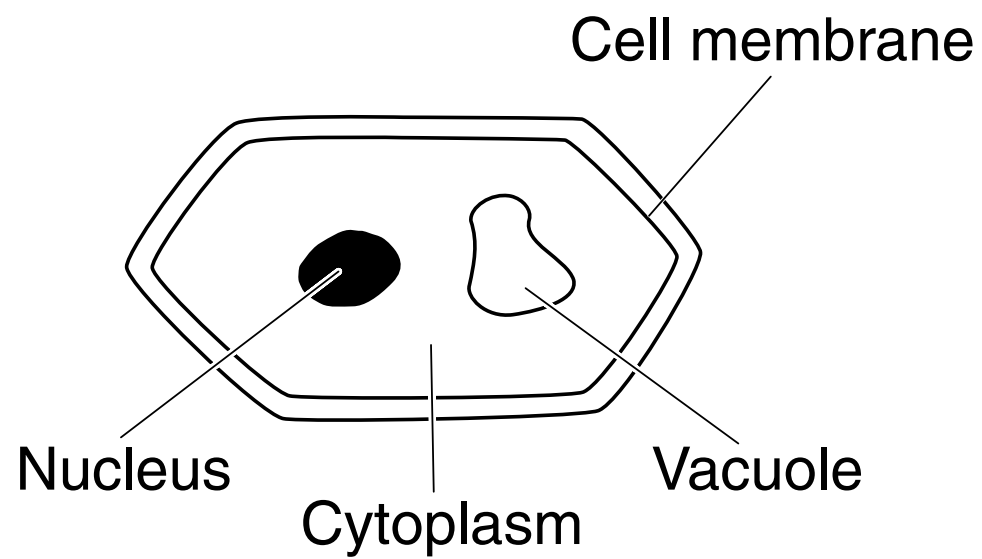
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Mouse Number	Food	Week 1 Mass Gain	Week 2 Mass Gain	Total Mass Gained
1	Rice	6 g	8 g	14 g
2	Grain	5 g	4 g	9 g
3	Corn	8 g	4 g	12 g
4	Mixture	12 g	8 g	20 g

Using the above table, what can you say about the relationship between each food and the mass of the mouse?

- F The mixture-fed mouse gained the most mass.
- G The rice-fed mouse gained the least mass.
- H The grain-fed mouse gained more mass in week 2.
- J The corn-fed mouse gained less mass in week 1.

5



In this plant cell, which cellular structure is responsible for storing food, water, and wastes?

- A Cytoplasm**
- B Vacuole**
- C Nucleus**
- D Cell membrane**

6 Which of these are found in plant cells but NOT in animal cells?

F Mitochondria

G Chloroplasts

H Cell membranes

J Endoplasmic reticulum

7 Sponges are classified as animals because they cannot

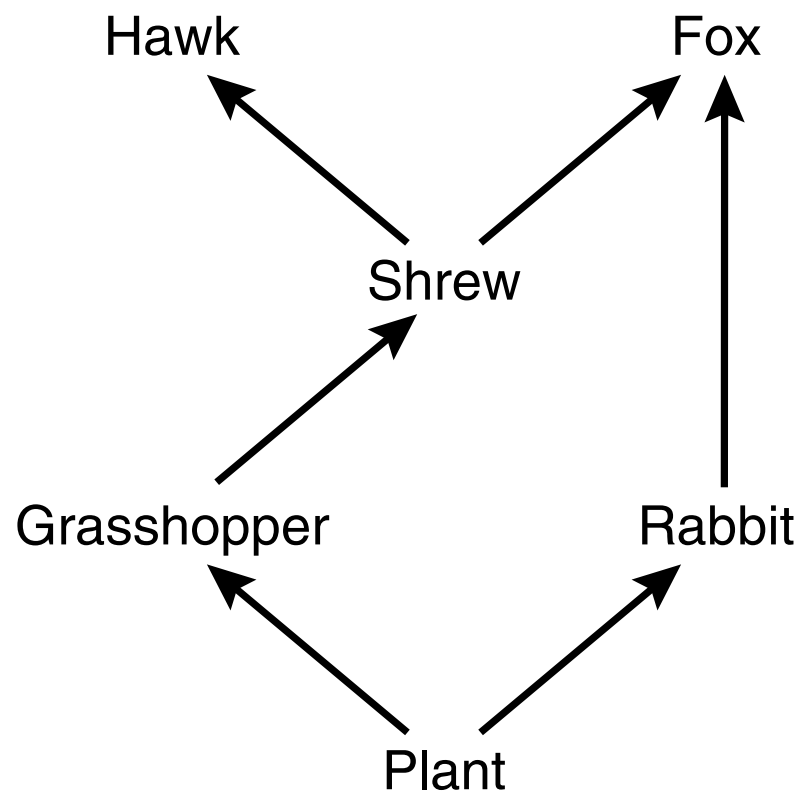
A move from place to place

B make their own food

C get rid of waste products

D catch their own food

8



The primary producer in the ecosystem above is the

- F plant
- G rabbit
- H hawk
- J fox

9 The kangaroo rat is able to get all of the water it needs through its food and, therefore, never needs to drink liquids. This animal has adapted to survive in which biome?

- A Forest**
- B Tundra**
- C Desert**
- D Grassland**

10 When animals hibernate, their heart rate and respiration decrease and they lose consciousness. Why do some animals hibernate?

- F To increase their body fat during cold periods**
- G To conserve energy usage during the winter**
- H To give their fur time to grow longer and thicker**
- J To rest after a summer of high activity**

11 Wherever civilizations have flourished, forests have been destroyed. Hundreds of years ago in England, rivers and seaports began to fill with silt after the forests were destroyed. What caused the silt to fill the seaports?

- A Eutrophication**
- B Succession**
- C Erosion**
- D Irrigation**

12 Many complex genetic experiments have been performed on plants. One of the very successful ones crossed wild wheat with a fungus-resistant wild grass. This ultimately produced a variety of wheat that was resistant to a very destructive parasitic fungus which kills nonresistant plants. Why would such experimentation benefit humans?

F The fungus is also dangerous to humans.

G Wheat is one of the most important food crops worldwide.

H The fungus could spread to all other plants.

J Wheat products made from infected plants would taste bad.

13 Mendel’s early work with pea plants demonstrated a significant genetic discovery. The crossing of homozygous tall pea plants with homozygous short pea plants always resulted in tall plants and demonstrated that tallness in pea plants is a trait that is

- A blended**
- B dominant**
- C mutated**
- D recessive**

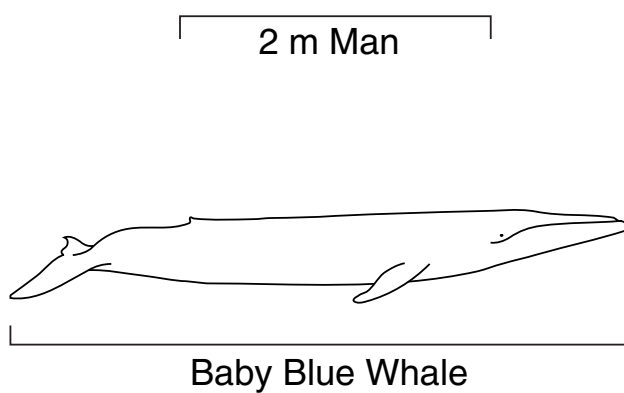
14 Changes in DNA are known as mutations and can sometimes produce beneficial changes in populations. A mutant form of the normally light-colored peppered moth is dark colored. The dark-colored moth blends in with soot-covered trees in heavily polluted areas. Why would the dark-colored mutation be beneficial in a polluted area?

F Dark-colored moths have a longer life span than light-colored moths.

G Dark-colored moths can't be seen well by predators.

H Dark-colored moths taste bad to most of their predators.

J Dark-colored moths produce more young than do light-colored moths.



According to the scale, what is the approximate length of the baby blue whale?

- A 2 meters**
- B 4 meters**
- C 6 meters**
- D 10 meters**

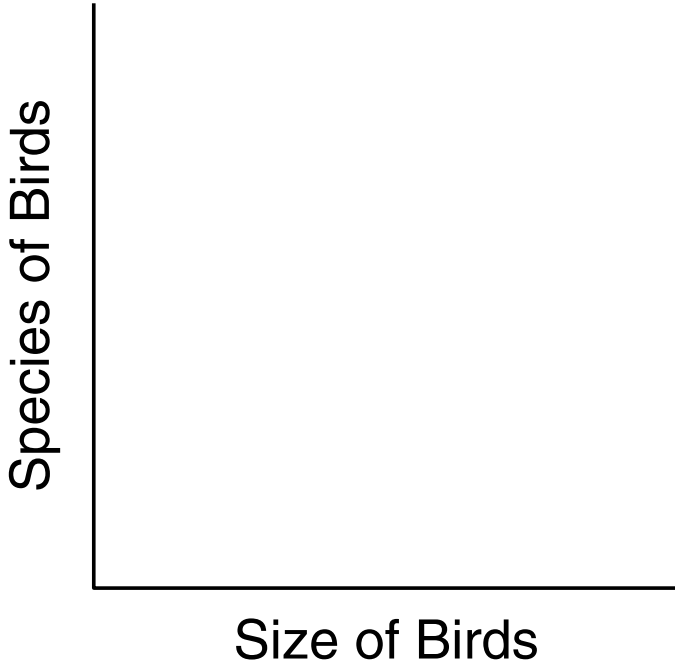
16 A student predicts that more sugar will dissolve in warm water than in cold water. She puts some water in a container, adds sugar, and then stirs. The amount of undissolved sugar is then observed. When this student repeats the experiment to verify her prediction, the only thing that should change is the

- F amount of water used**
- G temperature of the water**
- H amount of sugar used**
- J amount of time stirring**

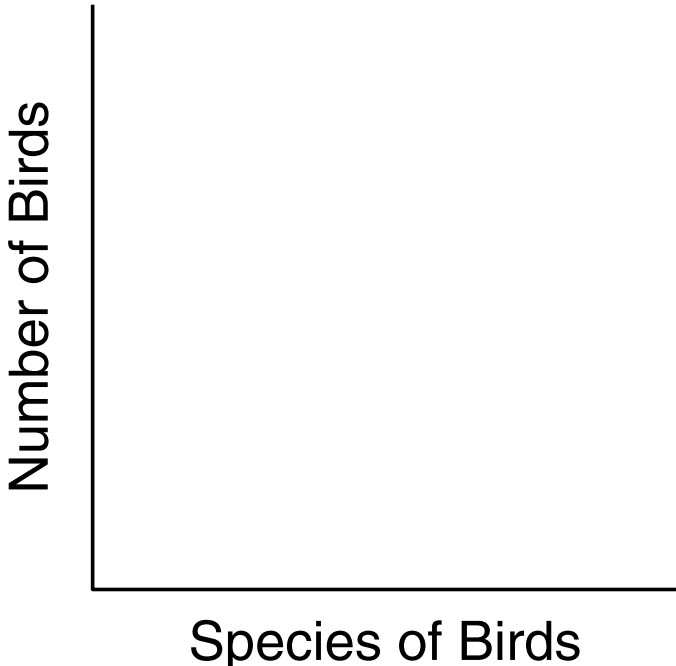
17 Some students counted the birds in an area. They counted the number of species present and the number of birds in each species. Which of these would be best to use to report the results?



A



C



B



D

18 A direct electrical current is different from an alternating current because only the direct electrical current

F produces a high voltage

G flows without resistance

H allows the flow of electrons in one direction

J can be converted to other forms of energy

19 Which of these BEST shows that calcium is different from all other elements?

A Its positive electrical charge

B Its presence in milk

C Its number of protons

D Its ability to combine with oxygen

20 Which of these can be separated by using a magnet?

F A mixture of sand and salt

G Rust formed from iron and oxygen

H A compound of hydrogen and sulfur

J A mixture of sand and bits of iron

21 Which of these CANNOT be separated into its parts by an ordinary chemical or physical process?

- A A mixture of salts (NaCl, KI)**
- B A compound of nitrogen (NH₃)**
- C An atom of carbon (C)**
- D An acid of chlorine (HCl)**

22 The process of iron combining with oxygen to form rust is considered a chemical change because rust has

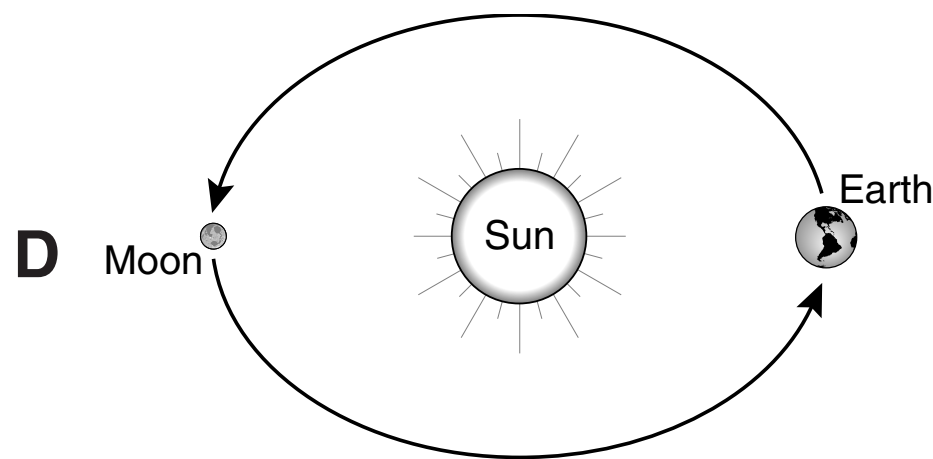
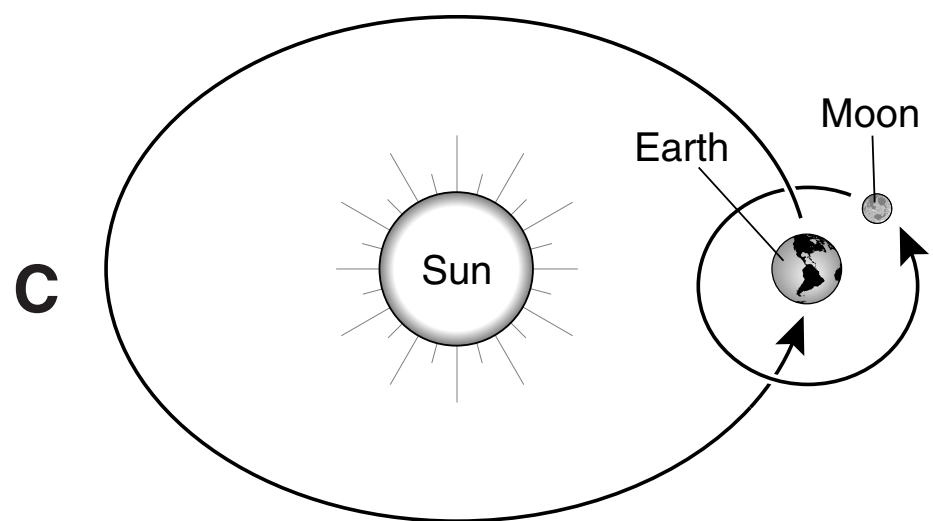
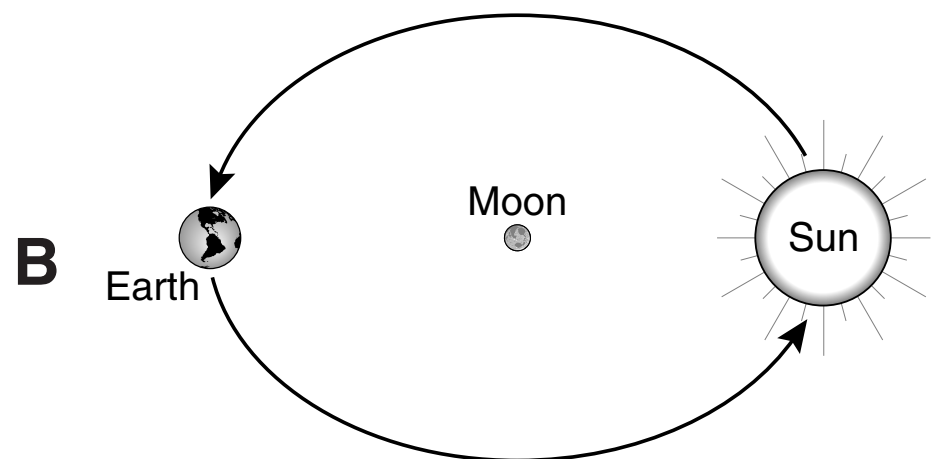
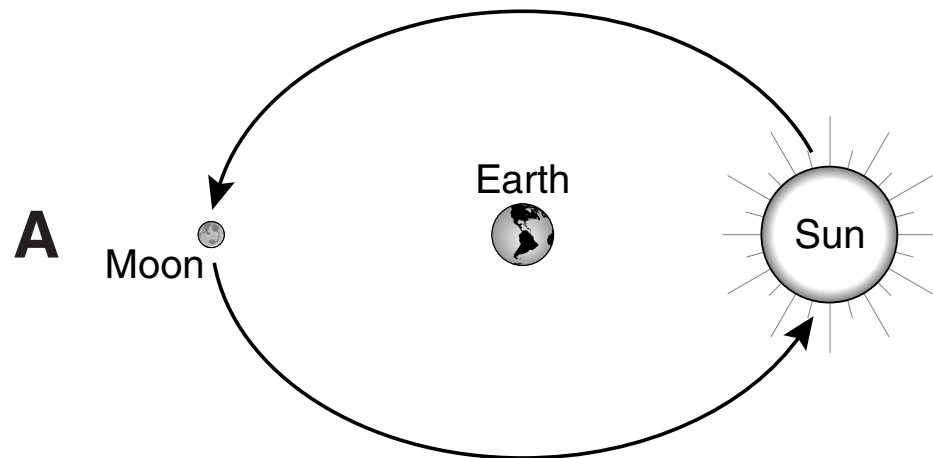
F properties that differ from both iron and oxygen

G the same chemical composition as iron

H a very high melting point

J greater chemical reactivity than oxygen

23 Which model best shows the relationship between the Earth, the moon, and the sun?



24 The amount of gravitational attraction between the Earth and an object depends on the object's distance from the Earth and the object's

F shape

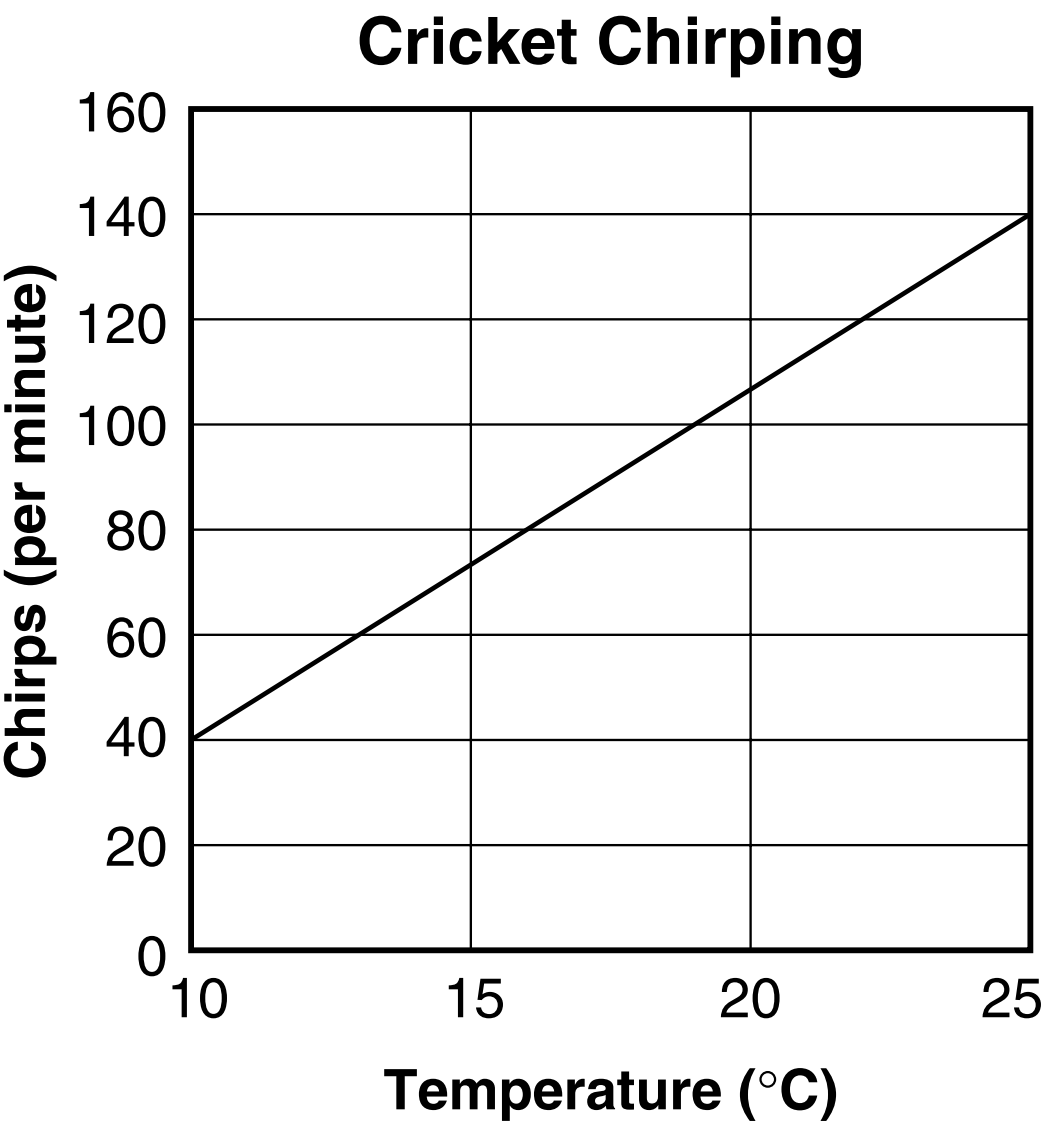
G mass

H state of matter

J size

25 Ellen noticed that she often sneezes when she visits her friend Robert, who has a cat and a parrot. Ellen wonders if she may have allergies to Robert’s pets and decides to conduct a scientific investigation. What should Ellen do next?

- A Ellen should tell Robert that she cannot visit him until he gives away his pets.**
- B Ellen should visit Sue who has a horse, a dog, a goldfish, and a hamster.**
- C Ellen should call her doctor and insist that she needs shots for allergies.**
- D Ellen should visit a friend who has only cats and one who has only parrots.**



Crickets chirp to attract other crickets. The temperatures and rates of their chirping are graphed on the previous page. Which statement below is most likely true for the data represented in the graph?

- F The cooler the temperature, the louder the crickets chirp.**
- G The crickets cannot chirp at temperatures lower than 10°C.**
- H The warmer the temperature, the more often crickets chirp.**
- J The temperature and the chirping of crickets are not related.**

27 The science of astronomy is concerned with the observation and analysis of the movements of celestial objects. The invention of which instrument was most helpful to the advancement of astronomy?

- A Telescope**
- B Microscope**
- C Camera**
- D Geiger counter**

28 There are many reasons why the use of oil needs to be managed carefully. Which of the following is NOT one of these reasons?

- F There are only limited supplies of oil in the Earth.**
- G Oil spills at sea have killed many marine animals.**
- H Burning oil contributes to acid rain and the greenhouse effect.**
- J Oil was created by plants and animals.**

- 29 Which of these BEST completes the statement about the interaction of the respiratory system with the circulatory system? The lungs add**
- A nutrients to the blood**
 - B bile to the blood**
 - C oxygen to the blood**
 - D carbon dioxide to the blood**
- 30 Northern garter snakes exhibit a unique behavior in which they gather in deep dens by the hundreds or thousands. They then coil together in a huge ball. This behavior could help to**
- F reduce heat loss**
 - G increase camouflage**
 - H locate food sources**
 - J increase oxygen consumption**

31 A tick that feeds on the blood of animals is a

- A predator**
- B host**
- C competitor**
- D parasite**

**32 Gases are much more compressible than liquids.
According to the particle model of matter, gases are
more easily compressed into smaller volumes because
the particles in gases are**

- F smaller**
- G more active**
- H farther apart**
- J filled with air**

33 Mercury is a liquid metal that is used in many thermometers. The mercury in the thermometer rises because it

- A is sucked upward by vacuum**
- B expands when heated**
- C is compressed by air pressure**
- D increases in density when heated**

34 A student determined the mass and volume of a gold ring. What physical property of the gold can be determined using these two measurements?

- F Its reactivity**
- G Its expansion rate**
- H Its density**
- J Its melting point**

Period

Group

14 15 16 17 18

1

2	6 C	7 N	8 O	9 F	10 Ne
3	14 Si	15 P	16 S	17 Cl	18 Ar
4	32 Ge	33 As	34 Se	35 Br	36 Kr
5	50 Sn	51 Sb	52 Te	53 I	54 Xe
6	82 Pb	83 Bi	84 Po	85 At	86 Rn

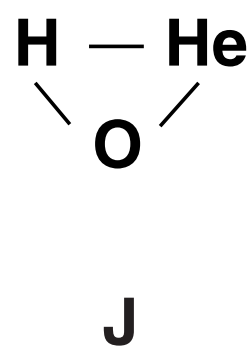
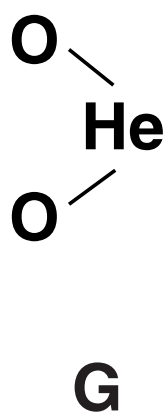
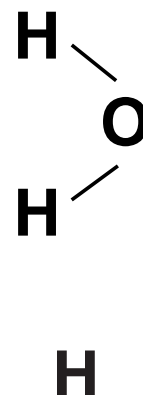
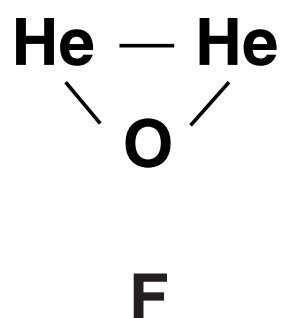
halogens

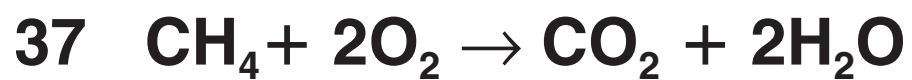
noble gases

Which of the following elements has 16 protons?

- A Oxygen
- B Chlorine
- C Sulfur
- D Germanium

36 Which diagram illustrates the structure of a molecule of water?





In this reaction, the products are

- A** CH_4 and 2O_2
- B** CH_4 and CO_2
- C** 2O_2 and $2\text{H}_2\text{O}$
- D** CO_2 and $2\text{H}_2\text{O}$

38 Which of these uses sound waves to measure the distance between objects underwater?

- F** Radar
- G** Sonar
- H** Lasers
- J** Radio

39 A wheelbarrow full of concrete mix that needs to be moved onto a platform could be moved either by lifting it above the ground and setting it onto the platform or by using an inclined plane. The advantage of using the inclined plane is that the work can be done

- A more quickly**
- B with less friction**
- C using less force**
- D using more energy**

Light Produced by Closed Circuit

Switch Material	Light Produced			
	1	2	3	4
Glass Fiber	None	None	None	None
Steel Nail	Bright	Dim	Very Bright	Bright
Aluminum Foil	Very Bright	Bright	Very Bright	Very Bright
Pencil Lead	Dim	Dim	Dim	Dim

According to these data, which material is the poorest electrical conductor?

- F Glass
- G Steel
- H Aluminum
- J Pencil lead



Answer Key

Test Sequence Number	Correct Answer
1	B
2	F
3	D
4	F
5	B
6	G
7	B
8	F
9	C
10	G
11	C
12	G
13	B
14	G
15	B
16	G
17	B
18	H
19	C
20	J
21	C
22	F
23	C
24	G
25	D
26	H
27	A
28	J
29	C
30	F
31	D
32	H
33	B
34	H
35	C
36	H
37	D
38	G
39	C
40	F